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**REVISION HISTORY**

REV	DESCRIPTION	SALES	RFS	DATE	APPROVED
A	Initial Release	DH	RFI-1377925	9/30/2020	DR
A1	ADD NTC DETAILS, ADDED PROPORTIONALLY CORRECT DRAWING, REDUCED CHARGE V FROM 16.8V TO 16.6 V FOR INCREASED SAFETY	DR		10/12/2020	DR
B	Update Nominal Voltage from 14.8V to 14.4V, Watt-Hours rating from 96.2Wh to 93.6Wh	MK	27636	5/17/2021	DR
B1	Change 2 layers of Blue PVC to 1 layer of Nomex wrap and 1 layer of Blue PVC wrap	MK	27677	10/26/2021	DR
C	Change model No to 4INR19/66-2, Cell from Samsung 18650 35E to LR1865HB, PCM from BQ24610/MM328INREH/BQ40Z50 to BQ24610/BQ40Z50 NTC from 10K (103F) ±1% B=3380(0603) NTC to 10K(103F) ±1% B=3435K NTC Rated Capacity: from C5A to 10.0V to 6500mAh (16.8-10V discharge @0.2C) Charging method from .2C CC charge to 16.8V then CV charge till charge current decline to ≤0.02C to Constant current +constant voltage Recommended Charge Cut-Off from By current 52mA or timer 5-8 hours to By current 0.02C or timer 9-10hours Maximum Continuous Discharge Current from 0.2C5A to 0.5C(3.25A) Expected Cycle Life to >300 cycles > 70% of initial capacity (0.2C charge/0.2C discharge) Over charge voltage detection from 4.25V/cell to 4.25V/cell±0.05V/Cell Over discharge voltage detection to 2.60 V/cell±0.05V/Cell Charging Source Input Current from 800mA to 1000mA, Temperature Range for Discharge to 20°C to +55°C GREEN OUTPUT (14.4V nominal), ADDITIONAL REQUIREMENTS: 12A melting fuse integrated, Update Label, packing info	MK	27677	2/21/2023	DR
C1	Change rated capacity to 6500mAh (16.8-10V discharge @0.2C)	MK	27772	2/27/2023	DR
C2	Update Label	MK	27775	3/7/2023	DR
C3	Change Over charge voltage detection: to 4.225V/cell±0.05V/Cell, Recovery voltage to 4.0V/cell±0.05V, Over discharge voltage detection to 2.75 V/cell±0.05V/Cell Update outline and label drawing	MK	27778	3/15/2023	DR
C4	Update model from 4INR19/66-2 to 4ICR27/67/149-2	MK	27785	4/3/2023	DR
D	Update Model # from 4ICR27/67/149-2 to BL3500C18654S2PG2646	MK	27795	5/5/2023	DR
D1	Watt-Hour Rating change from 93.6Ah to 93.6Wh, update outline drawing: the length change from max 149mm to max 150mm	MK	27800	5/17/2023	DR

**Foot Note:**

Globtek Inc. will not be liable for the safety and performance of these power supplies if unauthorized access and repair occurs. End user should consult applicable UL, CSA or EN standards for proper installation instruction.

**Limitation of Use:**

Globtek product are not authorized for use as mission critical components in life support hazardous environment, nuclear or aircraft applications without prior written approval from the CEO of Globtek Inc.

Contents of this document are subject to change without prior notice

 GlobTek® Inc.  
[www.globtek.com](http://www.globtek.com)

186 Veterans Drive, Northvale, NJ 07467  
Tel. 201-784-1000 Fax 201-784-0111

Drawing Title: Li-Ion Cylindrical Battery Pack  
14.4 Volts @ 6500mAh Battery pack w/ charger and fuel gauge

Model No. : BL3500C18654S2PG2646

Part No.: BL3500C18654S2PG2646

REV D1

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By customer signing or accepting this document, they agree to acknowledge and accept the **Guidelines and cautions, Safety Notes, and Safety Precautions published on GlobTek's website** [https://en.globtek.com/safety-cautions#.UUD-NRzU\\_I8](https://en.globtek.com/safety-cautions#.UUD-NRzU_I8)

GlobTek offers a 5-year warranty on workmanship and electrical components assembly on all new battery pack products excluding the battery cells themselves which are covered by the Manufacturer's original warranty at their published warranty period. Please refer to the manufacturer's manufacturer's warranty policy for cells. For GlobTek brand cells, GlobTek provides a 12-month warranty for Li-Ion batteries. The warranty period is based upon the expectation that the battery will deliver 80% of its initial capacity after 300 cycles at low to moderate power loads. High power loads may cause a battery to reach 80% of initial capacity in less than the 12-month warranty period. Li-Ion batteries will continue to operate below the 80% capacity threshold; however, the capacity (run time) delivered between charges will continue to decrease.

The purchaser of GlobTek battery pack products (Customer) agrees that they are a "Sophisticated user" who understands battery technology and that it is their sole responsibility to determine suitability of the product described for their application and to take precautions for protection against any hazards attendant to the handling and use of the product. GlobTek products are only designed for professional use and integration by companies into their products and may not be used by consumers directly. GlobTek provides batteries and battery packs as a component of an end system.

The acceptance of GlobTek specifications, the information on this page and use of the product(s) described in this or other GlobTek documents indicate that the product was qualified for use (tested and/or sample waiver signed), and the acceptance and binding of the customer to GlobTek terms and conditions, which supersede all other agreements, terms and conditions <http://en.globtek.com/terms-and-conditions/>

Lithium Ion batteries are inherently dangerous. Continuous usage or charging without allowing the battery to discharge is a hazard. FIRE HAZARD: This like all Li-Ion battery packs must be regularly discharged and charged. it is not recommended to be kept on permanent full charge and in a full state of charge.

**Customer Approval of Specification:**

Please approve, sign and send back to GlobTek so we can complete order processing.

A delay in receipt of this form will delay delivery schedule.

Company Name:

Customer P/N:

Quote Number:

Date:

Authorized Representative Name:

Authorized Representative Signature:



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**1. GENERAL SPECIFICATION:**

Battery with safety circuit:

Cell:	LR1865HB
PCM:	BQ24610/BQ40Z50
NTC:	10K(103F) ±1% B=3435K NTC
ID:	N/A
Fuel Gauge	Brand: TI PN: BQ40Z50
Configuration:	4S2P

**2. ELECTRICAL SPECIFICATION:**

Rated Capacity:	6500mAh (16.8-10V discharge @0.2C)
Nominal Voltage:	14.4V
Watt-Hour Rating:	93.6Wh
Charging Method:	Constant current +constant voltage
Maximum Charge Voltage	16.6±50mV
Charge Current:	800mA
Recommended Charge Cut-Off:	By current 0.02C or timer 9-10hours
Maximum Continuous Discharge Current:	0.5C(3.25A)
Recommended Discharge Cut-Off:	11.2 ± 50mV (2.8V/cell)
Internal Impedance:	≤300mΩ
Expected Cycle Life:	>300 cycles > 70% of initial capacity (0.2C charge/0.2C discharge)

**CELL PROTECTION:**

Over charge voltage detection:	4.225VV/cell±0.05V/Cell (Recovery voltage 4.0V/cell±0.05V/Cell)
Over discharge voltage detection:	2.75 V/cell±0.05V/Cell (Recovery voltage 3.0V/cell±0.05V/Cell)
Over discharge current protection:	4.0A to 6.0 A (Protection delay 2 seconds, recovery condition disconnect load or charge)

**3. RECOMMENDED CHARGING SOURCE SPECIFICATIONS:**

Charger Source Input Voltage:	19-27 V from GlobTek Power supply designed to match this battery pack.
Charging Source Input Current:	1000mA

**4. AMBIENT CONDITIONS**

Ambient Pressure:	86kPa - 106kPa
Temperature Range for Charge:	0°C to +45°C
Temperature Range for Discharge:	-20°C to +55°C
Charge Retention/Storage [%]:	≤1 month at -20°C to +45°C >80%
	≤3 months at 0°C to +30°C >80%
	≤6 months at 20°C ±5°C >80%



**Internal Fuel Gauge with SMBus**

**Internal Charger for Plug+Play**

**This sales drawing includes key parameters but not all spec parameters. Contact GlobTek with any additional questions**

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Battery storage maintenance interval (for batteries stored at approx. 40% state of charge)  
Every 3 months @ -20°C TO 25°C  
Every 1 month @ -20°C TO 45°C

Relative Humidity: 45% - 75% RH

**5. ENVIRONMENTAL AND SAFETY**

Please follow GlobTek, Inc. Handling and Safety Precautions for Lilon & LiPolymer Batteries

**6. CELL REGULATORY APPROVALS:** Cell approved to UL1642

**7. BATTERY PACK APPROVALS:**

RoHS: COMPLIES WITH EU 2002/95/EC AND CHINA SJ/T 11363-2006

CE Mark: COMPLIES WITH 2004/108/EC ELECTROMAGNETIC COMPATIBILITY INCLUDING BUT NOT LIMITED TO EN61000-6-1:2007, EN61000-6-3:2007

Transportation: Designed to meet UN38.3

Safety: Designed to meet CB to IEC 62133: 2012 (2nd Edition), Designed to meet UL 2054, IEC61960:2003, Japanese PSE Standards JIS C 8712:2006, JIS C 8714:2007



**Internal Fuel Gauge with SMBus**

**Internal Charger for Plug+Play**

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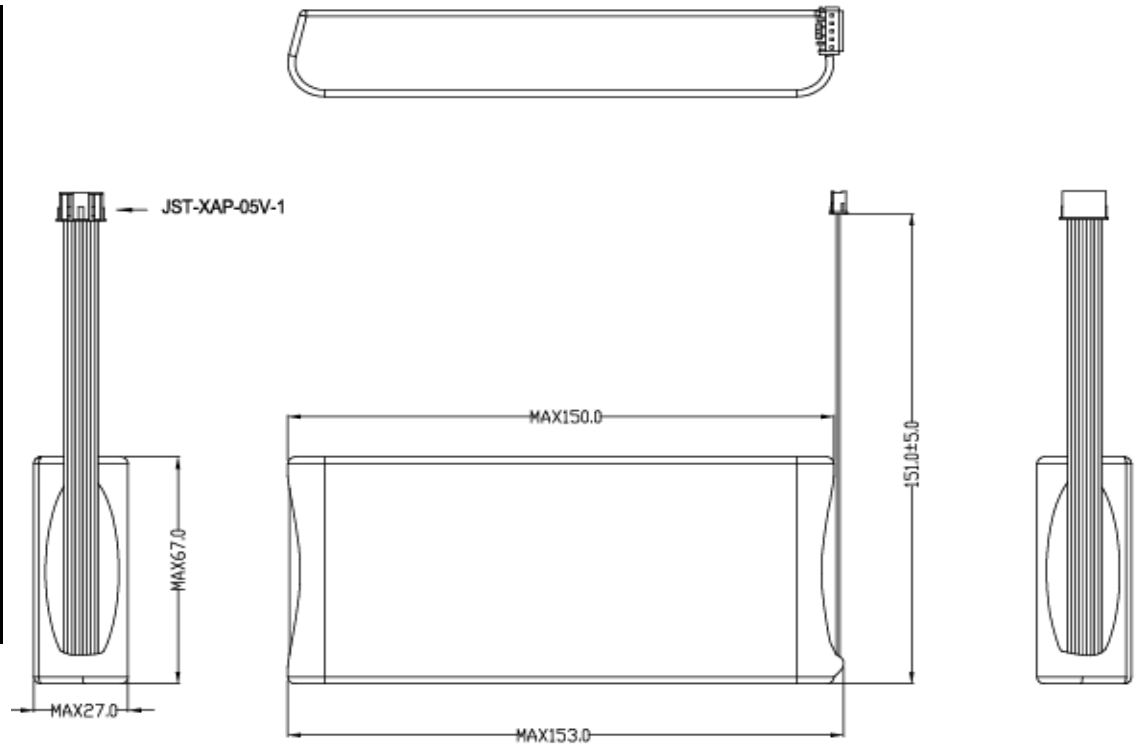
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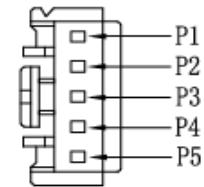
**8. MECHANICAL:**

DIMENSIONS:	>>>See DWG>>>
SHRINK WRAP:	1 layer of Nomex wrap and 1 layer of Blue PVC wrap The second shrink wrap shall be 90° displaced from the first one
WIRE TYPE:	UL3239, 24AWG
WIRE LENGTH WITH CONNECTOR:	151.0 mm ± 5.0 mm
L1 WIRE POLARITY:	RED = INPUT (Charger 19V-27V)
L2 WIRE POLARITY:	BLACK GND
L3 WIRE POLARITY:	GREEN OUTPUT (14.4V nominal)
L4 WIRE POLARITY:	YELLOW SMBD (data)
L5 WIRE POLARITY:	BLUE SMBC (Clock)
CONNECTOR TYPE:	see next page
STRIP LENGTH:	N/A
TIN LENGTH:	N/A
ADDITIONAL REQUIREMENTS:	12A melting fuse integrated in L3 (OUTPUT)



**Internal Fuel Gauge with SMBus**

**Internal Charger for**



P1: INPUT (Red)  
P2: GND (Black)  
P3: OUTPUT (Green)  
P4: SMBD (Yellow)  
P5: SMBC (Blue)

FRONT VIEW

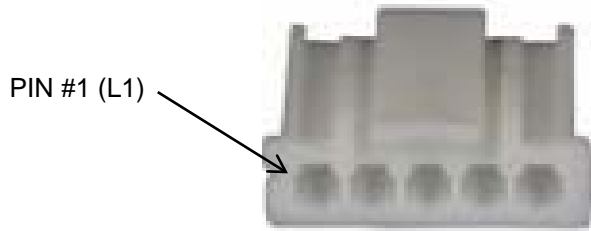
[ADDITIONAL OUTPUT PLUG OPTIONS ARE AVAILABLE BY CLICKING THIS LINK.](#)  
[STANDARD PLUGS AND CONNECTORS CAN BE SEEN ONLINE BY CLICKING THIS LINK](#)

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**9.CONNECTOR:**

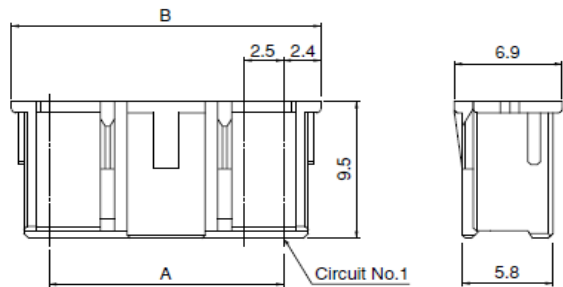
ACTUAL CONNECTOR'S, OVERMOLDS, MAY VARY SLIGHTLY FROM THE PICTURE BELOW



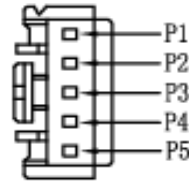
REAR VIEW

	EQUIVALENT	Y / N
PLUG TYPE		Y
HOUSING TYPE		JST-XAP-05V-1
TERMINALS		Y
TERMINAL TYPE		STANDARD TYPE
OVER MOLD ORIENTATION		JST-XAP-5P
PLUG DIMENSIONS		FEMALE
BARREL PLUG INTERNAL SPRING CLIP		N/A
BARREL PLUG LOCKING NOTCH		N/A
POLARITY		N/A
ADDITIONAL REQUIREMENTS		N/A

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A=10.0 mm  
B=14.8 mm



FRONT VIEW

- P1: INPUT (Red)
- P2: GND (Black)
- P3: OUTPUT (Green)
- P4: SMBD (Yellow)
- P5: SMBC (Blue)

**Internal Fuel Gauge with SMBus**

**Internal Charger for Plug+Play**

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**10. LABEL:**

MATERIAL:	SEE BELOW
BACKGROUND COLOR:	WHITE
TEXT COLOR:	BLACK
LABEL WIDTH: (mm)	50.0 mm
LABEL HEIGHT: (mm)	35.0 mm
ADDITIONAL REQUIREMENTS:	N/A
ADDITIONAL REQUIREMENTS:	N/A

**Internal Fuel Gauge with SMBus**

**Internal Charger for Plug+Play**



MATERIAL: .007(0.18) THICK FLAT THERMAL TRANSFER, IMPRINTABLE, WHITE POLYESTER SHEET WITH BLACK NOMENCLATURE. LABEL IS GLAZE AND ATTACHED ON PLASTIC CASE.  
 MANUFACTURER: STEVEN LABEL, MATERIAL I.D. NO.3302-33, UL FILE NO.MH12821(N)UL MATERIAL DESIGNATION FILE NO.GHW332RL. OPTIONAL LABEL MATERIAL CAN BE SUBSTITUTED PROVIDING MATERIAL IS UL LISTED AND COMPLIES WITH APPLICABLE SAFETY REQUIREMENTS.

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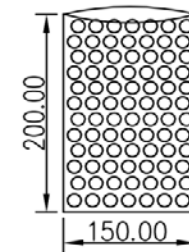
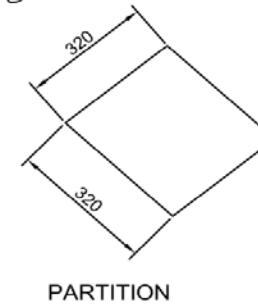
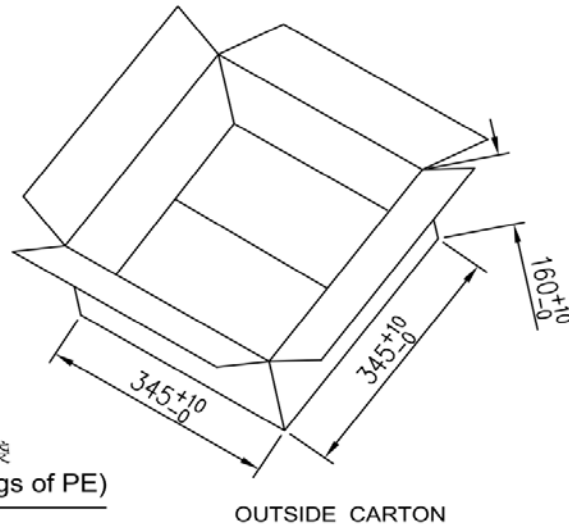
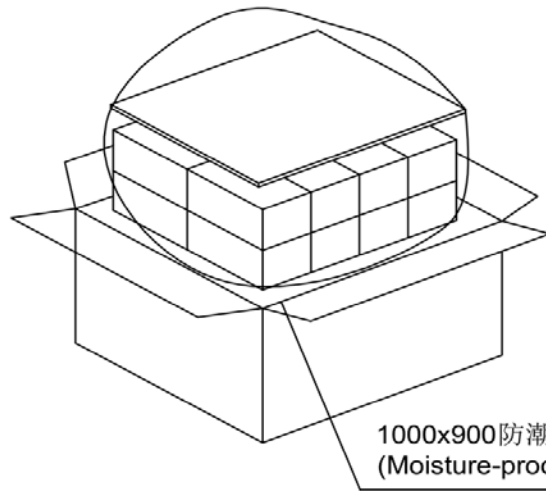
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**11. PACKAGING:**

PE BAG SIZE	200*150 mm
CARTON SIZE:	345 x 345 x 160 mm
QUANTITY PER CARTON:	16 pcs
G.W.	TBA kg/carton

16 PCS/CARTON  
L(2\*158)\*W(4\*78)\*H(2\*65)



BUBBLE BAG:200\*150mm

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